1867MNRAS..27..191B

the mean of all the measures with the exception of those of the small component of the double star β *Cygni.*

| Aperture of Telescope. | Diam. of Disk calculated. | Diam. of Disk observed. |
|---|---|---|
| in. | [illegible] | [illegible] |
| 7·33 | 0·752 | 0·693 |
| 6·00 | 0·920 | 0·870 |
| 4·95 | 1·113 | 1·120 |
| 4·00 | 1·380 | 1·437 |
| 3·00 | 1·840 | 1·862 |
| 2·00 | 2·760 | 2·572 |

It will be seen that with the exception of the measures with apertures 4·95, 4·0, and 3·0 inches, which are slightly in excess, the observed diameter is less than the calculated diameter, a result which for the reason given above we might be naturally led to expect.

*Woodcroft Observatory*, *Cuckfield*,
*January* 9, 1867.

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## *Observations of Iris and Vesta made at Dunsink at the Observatory of Trinity College, Dublin.* By F. Brunnow, Astronomer Royal for Ireland.

The hope which I expressed in my last communication, that the Ephemeris of *Iris* computed from my tables would give the place of the planet with great accuracy, has been fully realised. I have obtained here the following Meridian observations:—

| | | Dunsink M.T. | R.A. | Decl. |
|---|---|---|---|---|
| | | h m s | h m s | ° ′ ″ |
| 1866 | Nov. 23 | 12 44 5·3 | 4 55 10·03 | +24 56 20·8 |
| | 25 | 12 34 20·4 | 4 53 16·57 | 24 43 59·5 |
| | 28 | 12 19 36·9 | 4 50 20·26 | 24 24 47·5 |
| | 30 | 12 9 45·3 | 4 48 20·14 | 24 11 39·2 |
| | Dec. 5 | 11 45 5·1 | 4 43 18·50 | 23 37 53·6 |
| | 10 | 11 20 26·3 | 4 38 27·39 | 23 3 36·3 |
| | 12 | 11 10 53·2 | 4 36 37·09 | 22 50 0·5 |
| | 14 | 11 1 16·8 | 4 34 52·17 | 22 36 36·7 |

The error of the Ephemeris according to these observations is,—

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1867MNRAS..27..192S

| | | |
|---|---|---|
| | s | ″ |
| Nov. 23 | −0·22 | −0·2 |
| 25 | 0·25 | +0·4 |
| 28 | 0·20 | +2·0 |
| 30 | 0·11 | +1·0 |
| Dec. 5 | 0·16 | −0·1 |
| 10 | 0·21 | +2·2 |
| 12 | 0·04 | +2·8 |
| 14 | 0·33 | +1·3 |

The mean of these errors is — 0″·19 in Right Ascension, and + 1″·2 in Declination, and therefore less than some of the residual errors of the normal places which have been used for determining the elliptic elements. As the planet was very near the Earth at this last opposition, I trust that my tables will give its place with sufficient accuracy for a long time to come.

I also obtained a few observations of *Vesta* :—

| | | | | R.A. | | | Decl. | | |
|---|---|---|---|---|---|---|---|---|---|
| | h | m | s | h | m | s | ° | ′ | ″ |
| 1866 Aug. 25 | 12 | 40 | 8·8 | 22 | 56 | 22·95 | − 17 | 34 | 52·4 |
| Sept. 2 | 12 | 1 | 27·4 | 22 | 49 | 7·61 | − 18 | 35 | 11·0 |

which give the following errors of the Ephemeris in the Berlin *Jahrbuch* :

| | | |
|---|---|---|
| Aug. 25 | + 3·61 | + 30·3 |
| Sept. 2 | 3·92 | 32·5 |

These errors, being unusually large, led me to suspect that the Ephemeris which had been computed from my manuscript tables by Dr. Powalky of Berlin was wrong. I therefore computed the place for August 25 myself, and found indeed an error in the Ephemeris of the *Jahrbuch* amounting to — 0″·71 and — 10″·0. This correction will decrease the errors given above, but the remaining error is still larger than I expected. It may be, however, that the effect of the terms of the second order which have been neglected in constructing the tables begins to show itself.

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## *On the Possibility of a Change in the Position of the Earth's Axis due to Frictional Action connected with the Phenomena of the Tides.* By E. J. Stone, Esq.

I shall first consider that the frictional action is equivalent to a couple whose intensity is proportional to the existing

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